URS

October 13, 2011

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Subject: DS Tributary (East) Work Plan Letter Report
Detrex Source Control Area – Fields Brook Superfund Site
Detrex Corporation, Ashtabula, Ohio
Docket No. V-W-98-C-450

Dear Mr. Thompson:

On behalf of Detrex Corporation (Detrex), URS Corporation (URS) is submitting the attached Letter Report documenting the results and evaluation of the DS Tributary (East) Investigation Work Plan (URS, August 2011). The Work Plan was approved by the United States Environmental Protection Agency (USEPA) in September 2011 and the associated field work was completed on September 13, 2011. As outlined in the approved Work Plan, Detrex completed an additional investigation of a portion of the DS Tributary extending from State Road Bridge to the east along the DS Tributary, as well as a Closed-Circuit Television (CCTV) survey of the State Road culvert from the east to west side of State Road. The remainder of this letter report presents the background, methodologies, results, and data evaluation associated with the completion of the approved Work Plan tasks.

BACKGROUND

In late July 2011, FBAG met with USEPA personnel and presented data obtained from sampling in the eastern portion of the DS Tributary. Detrex did not have an opportunity to review this data until after the meeting between the Fields Brook Action Group (FBAG) and USEPA. The results from this investigation are summarized in a figure developed by FBAG which is presented as **Figure 1**. FBAG reported surface water and sediment samples from six (6) locations along the DS Tributary, as well as the presence of a reported 14-inch diameter drain pipe within the DS tributary culvert that passes underneath State Road. The assumed location and orientation of the 14-inch drain pipe is also depicted in **Figure 1**. Based on the reported laboratory from the FBAG Samples (June 2011), no exceedances of the previously established Sediment Confidence Removal Goals (CRGs) were reported for the sediment samples from the eastern portion of the DS Tributary. The highest total VOC result for surface water was 7,644 µg/L, from a sample obtained from the 14-inch drain line located within the State Road culvert. Additionally, no dense non-aqueous phase liquid (DNAPL) was reportedly observed. This was the same area that was sampled by Detrex in April 2011.

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During the April 2011 sampling event, URS and Detrex personnel completed a visual inspection of the DS Tributary, both upstream and downstream of the State Road Culvert. These results were submitted to the USEPA in a letter dated May 24, 2011. The results of the Detrex April 2011 sampling did not indicate any significant impacts and no DNAPL or sheen was noted at the time of the sampling. However, the data reported to USEPA by FBAG was not consistent with the April 2011 results. Additionally, as part of the July 2011 FBAG presentation to USEPA data from an area referred to as the "Detrex Ditch" was reported. The location of this ditch is on Detrex property and is located within the existing storm water collection system.

Based on subsequent discussions between USEPA and Detrex an Addendum to the previously submitted Additional Excavation of Western DS Tributary Work Plan (URS, 2011), was prepared to complete an additional investigation along the eastern portion of the DS Tributary extending from the State Road culvert to the east approximately 400 feet. This Addendum outlined additional measures that Detrex would complete related to further investigating the Eastern portion of the DS Tributary, including:

- The completion of field reconnaissance along the eastern portion of the DS Tributary;
- The completion of a Closed-Circuit Television (CCTV) survey of the DS Tributary culvert, extending from the east to west side of State Road; and
- The collection and laboratory analysis of sediment and surface water samples from selected locations along the eastern portion of the DS Tributary, extending from the east side of State Road approximately 400 feet (ft.).

The proposed sampling locations for the eastern portion of the DS Tributary, as outlined in the Addendum, are provided in **Figure 2**.

SEPTEMBER 2011 DS TRIBUTARY (EAST) METHODOLOGIES

The area of completed additional investigation is depicted in **Figure 3**. The field work was completed from September 13, 2011. Details related to the methodologies employed during the completion of field activities are provided in the following sections.

DS TRIBUTARY (EAST) FIELD RECONNAISSANCE

On September 13, 2011, Detrex and URS personnel, along with USEPA, SulTRAC and Ohio EPA personnel, completed the visual field reconnaissance of the DS Tributary extending from the east side of the State Road culvert to approximately 400 feet east along the DS Tributary, as well as the area referred to by FBAG in the their July 2011 presentation to the USEPA as the "Detrex Ditch". Field notes and a photographic log were completed as part of the visual reconnaissance. Further details related to the results of the field reconnaissance are discussed later in this letter report.

CLOSED-CIRCUIT TELEVISION (CCTV) INSPECTION

On September 13, 2011, URS conducted a Closed-Circuit Television (CCTV) inspection for the 3ft. x 5ft. box culvert and adjacent 60-inch diameter storm pipe connecting the eastern and western sides of the DS Tributary underneath State Road. The inspection was completed using both hand-held video equipment within the 60-inch and 3ft. x 5ft. box culverts underneath State Road, and a crawler camera to access the FBAG identified 14-inch drain line. The CCTV inspection was treated as a confined space entry and appropriate health and safety measures were employed by URS during the completion of the task.

URS personnel utilized an Envirosight© 600 crawler camera to inspect the drain line. This camera has the ability to pan and tilt 360 degrees and zoom to identify problem areas. The camera is a robot type of camera that is controlled from a specialized truck used specifically for the inspection.

Logs of the hand-held video and CCTV survey were completed to document the observations found during the inspections. Further details related to the results of the CCTV inspection are discussed later in this letter report.

DS TRIBUTARY (EAST) SEDIMENT& SURFACE WATER SAMPLING

On September 13, 2011, URS conducted surface water and sediment sampling at seven (7) along and within the eastern portion of the DS Tributary. It is noted that six (6) locations were originally scoped in the Addendum; however, based on the field reconnaissance an additional location was required to provide for the sampling of the entire eastern portion of the DS Tributary prior to it turning to the north from the Detrex Site. The completed sampling locations were identified as DST SED 2011-01 through DST SED 2011-07. The sampling locations were equally spaced on approximately 75 foot spacing, with the exception of the final location (DST SED 2011-07) which was approximately 40 ft from the previous sampling location (DST SED 2011-06). The approximate locations of the sediment & surface water sampling locations are depicted in **Figure 3**.

The sampling procedures that were followed in the field were consistent with those outlined in both the previously approved *Sediment / DNAPL Delineation Work Plan* (URS, 2009) and the DS Tributary Work Plan Addendum (URS, 2011). A summary of the sampling procedure is provided below.

- At each location, a 3 ½ inch diameter hand auger was advanced through sediment into underlying soil to a depth of no more than 2 feet below ground surface (ft-bgs) or refusal.
- An 8-inch diameter PVC pipe was driven into the channel to prevent surface water from entering the location during sampling.

- The depth of sediment was recorded and a sediment sample will be collected at each of the locations (i.e., DST SED 2011-01 thru DST SED 2011-07).
- The sediment samples were subsequently submitted for analytical testing. The sediment samples were analyzed for volatile organic constituents (VOCs) utilizing USEPA Test Method 5035 – 8260B, and semi-volatile organic constituents (SVOCs) utilizing USEPA Test Method – 8270C.
- Surface water samples were also collected at coincident locations, with the exception of DST SED 2011-06, and submitted for analytical testing. Surface water samples were identified similar to the sediment samples (i.e., DST SED 2011-01 through DST SED 2011-05, DST SED 2011-07). Surface water samples were also analyzed for VOCs utilizing USEPA Test Method 8260B, and SVOCs utilizing USEPA Test Method – 8270C. The sampling locations were flagged in the field for subsequent surveying.

It is noted that no surface water sample was obtained from location DST SED 2011-06. This is due to the fact that only six (6) sets of sample vials were received from the lab, and since another location was added to the sampling program there were not enough vials to provide for the sampling. It was determined in the field that a surface water sample from the farthest point would be more appropriate so DST SED 2011-07 was sampled instead of DST SED 2011-06.

SEPTEMBER 2011 DS TRIBUTARY (EAST) RESULTS SUMMARY

This section provides a summary of the results from the completed DS Tributary (East) investigation. The data are summarized and presented as either tables or attachments to this letter report.

DS TRIBUTARY (EAST) FIELD RECONNAISSANCE

URS personnel arrived at the Detrex Site at approximately 8:00 AM on September 13, 2011. All URS personnel signed in at the Detrex office and attended a safety and task meeting. In addition, USEPA, SulTRAC, and Ohio EPA personnel attended the safety meeting and observed the sampling program. Following the completion of the safety meeting, URS personnel conducted the field reconnaissance and sediment/surface water sampling of the eastern portion of the DS Tributary. A photographic log and field log book notes were recorded during the completion of the field reconnaissance. The photographic log and a copy of the field log book notes are included as **Attachment A**.

CLOSED-CIRCUIT TELEVISION (CCTV) INSPECTION

URS personnel arrived at the Detrex Site at approximately 8:30 AM on September 13, 2011. All URS personnel signed in at the Detrex office and attended a safety and task meeting. Following the completion of the safety meeting, URS personnel conducted a walk through video observation of the existing culvert that extends east-west underneath State Road, just north of the Detrex Site. The primary

objective of the CCTV inspection was to observe the general condition of the culvert and to document any storm water connections to the culvert from the general direction of the Detrex Site. In addition, the 14-inch drain line, previously reported by FBAG, was also investigated as part of the CCTV inspection.

During the CCTV inspection, the level of water constantly running through the culvert was observed to vary along the pipe, but generally ranged between 1-5 inches of water. Observations within the culvert were documented with a hand-held video camera. URS personnel entered the 60-inch circular reinforced concrete culvert from the upstream (east) end of the culvert, and proceeded to walk west (along with the flow) through the culvert making observations until reaching the west end of the culvert.

A copy of the video footage was transferred to DVD, and a log of the observations (in PDF format) was also prepared using Wincan® V8 CCTV inspection software. Video files and PDF annotated logs from the completed CCTV inspection are provided as **Attachment B**.

DS TRIBUTARY (EAST) SEDIMENT& SURFACE WATER SAMPLING

URS personnel arrived at the Detrex Site at approximately 8:00 AM on September 13, 2011. All URS personnel signed in at the Detrex office and attended a safety and task meeting. Following the completion of the safety meeting, URS personnel conducted the field reconnaissance and sediment/surface water sampling of the eastern portion of the DS Tributary.

As outlined previously, the completed sampling locations were identified as DST SED 2011-01 through DST SED 2011-07. The sampling locations were equally spaced on approximately 75 foot spacing, with the exception of the final location (DST SED 2011-07) which was approximately 40 ft from the previous sampling location (DST SED 2011-06). The sediment and surface water samples, collected as part of the completed work, were subsequently submitted for analytical testing. The sediment samples were analyzed for VOCs utilizing Method 5035 – 8260B, and SVOCs utilizing Method – 8270C. Surface water samples were also analyzed for VOCs utilizing Method 8260B, and SVOCs utilizing Method – 8270C.

The collected samples were stored on ice in coolers and transported to Precision Analytical, Inc. located in Cleveland, Ohio for analysis under proper chain of custody. Samples were received by the lab on September 14, 2011, and no problems with the samples, analytical event, or quality control data were reported. The analytical results summary of detectable constituents from each of the sampling locations is provided in **Table 1**. The entire laboratory analytical report is provided as **Attachment C**.

SEPTEMBER 2011 DS TRIBUTARY (EAST) RESULTS EVALUATION

The following section provides details related to the evaluation of the data collected during the completion of the DS Tributary (East) investigation. All of the work outlined in the approved

Work Plan was safely and successfully completed with no significant deviations from the Work Plan.

DS TRIBUTARY (EAST) FIELD RECONNAISSANCE

During the field reconnaissance no remarkable issues were identified. The DS Tributary was fairly-well vegetated with no visible signs of vegetative stress or impacts from potential contaminants. Surface water was present within the DS Tributary at the time of sampling. No DNAPL was observed at any sampling point along the eastern portion of the DS Tributary channel. Additionally, the area referred to by FBAG as the "Detrex Ditch" is actually part of the property which is contained by the existing storm water controls for the Site. This area drains to a catch basin where it is collected and treated in the existing waste water treatment plant prior to discharge through the permitted Detrex NPDES discharge outfall. Further, the previously unknown 15-inch drain line that was investigated as part of the CCTV inspection also appears to be part of a former storm water system. This line is now at least partially plugged and the original manhole is within the existing storm water control system for the Detrex Site. A copy of a Detrex figure showing the storm water surface control features is provided as **Attachment D**.

CLOSED-CIRCUIT TELEVISION (CCTV) INSPECTION

Based on a review of the various video files and field logs, a summary of general observations made during the CCTV inspection of the culvert is provided as follows:

- Rocks and sediment were present in the invert of the culvert throughout the entire length. It is noted that no cleaning of the pipe was performed prior to the walk through.
- The pipe surface at the invert (6 o'clock position) shows surface damage throughout the length of the pipe. The concrete is eroded and the rebar reinforcement is also eroded and protruding throughout the length of the pipe. However the floor of the pipe is still sound with no holes or voids observed.
- Most pipe joints were dry and in good condition with only a few joints showing infiltration stains.
- Approximately 85 feet to the west of the east culvert opening, a chamber is present. At this location the culvert shape transitions from a 60-inch diameter round pipe to an approximately 3.5' x 6' rectangular box culvert.
- At the chamber, three (3) 15-in. diameter round clay storm inlet pipes enter the culvert. One from the north, one from the south and one from the southeast direction.
    - The north inlet pipe had a small amount of flow through it. It also contained rocks, sediment and debris in it.
    - The south pipe was blocked off with an apparent concrete plug approximately four (4) feet upstream of the culvert. No flow was present in this pipe and only a small amount of standing water was present in the pipe.

  - The southeast pipe (i.e., previously identified FBAG 14-in. drain line) had a trickle of flow through the pipe. From the view from inside of the culvert, the pipe appeared to be open. The pipe extended approximately eight (8) feet upstream of the culvert and then appeared to take a bend to the southeast. A crawler type camera was inserted into this pipe to further document the pipe.
  - The crawler inspection revealed that the southeast pipe contained sediment material which gradually increased in volume further up the pipe. At approximately 36 feet the camera could not advance further due to accumulated sediment in the pipe. It is most probable that the pipe is blocked further upstream. Based on historical drawings showing storm water improvements in 1989, this pipe apparently was formerly used to drain the front portion of the Detrex Site, prior to the implementation of the existing storm water controls. No flow was observed at the upstream end of this pipe. The CCTV log report contains further observations of this pipe.
- The box culvert was constructed of a combination of old block material and newer poured reinforced concrete walls and extends approximately 90 feet from the chamber.
- Rocks and sediment were present on the floor of the pipe throughout the length of the box culvert.
- Several cracks, voids and minor occurrences of water infiltration were observed on various locations on the walls of the transition chamber and remaining box culvert.
- At the bottom of each wall, both on the north and south sides, the concrete and block material is eroded and the rebar reinforcement underneath the poured concrete sections is also eroded and protruding throughout the length of the pipe. However, the floor of the pipe is sound with no holes or voids observed.
- One 15-in. diameter, round reinforced concrete pipe enters the culvert from the north approximately 55 feet downstream of the chamber. This pipe contained approximately two (2) inches of constant flow of water in the pipe.
- No unusual odors were noticed inside of the culvert except for a slight industrial chemical odor at the outlet (west) end of the culvert. No airborne contaminants were recorded by the air monitoring equipment used during the walk.
- URS personnel conducted a conventional survey of the elevations of the culvert and inlet storm pipes observed.

The video files and PDF logs of the CCTV inspections provide additional detail related to the results of the CCTV inspection (see **Attachment B**). It should be noted that there were additional discharge pipes and penetrations into the culvert that enter from the north side. These discharge pipes would not be associated with the Detrex Site, which lies to the south and southeast of the culvert.

DS TRIBUTARY (EAST) SEDIMENT& SURFACE WATER SAMPLING

As outlined previously, the results of detected VOCs from the sediment and surface water sampling completed at sampling locations DST SED 2011-01 through DST SED 2011-07 are summarized in

Table 1. Only a limited number of VOCs were reported above detection limits, and no SVOCs were reported above detection limits. For the VOCs, the majority of the reported detection were for TCE and cis-1,2-DCE, while PCE, VC and trans-1,2-DCE had one detection each. The distributions of individual constituent detections in either surface water or sediment sample are summarized in box plots shown in **Figures 4 and 5**, respectively. Total VOCs for both surface water and sediment samples are presented graphically in **Figure 6**. It should also be noted that in **Figures 4 through 6**, the previously reported FBAG surface water and sediment results are reported in either µg/L or µg/kg, as appropriate.

Based on the September 2011 sampling event it is noted that cis-1,2-DCE is consistently detected in all surface water samples except for DST SED 2011-01, with concentrations generally decreasing from DST SED 2011-07 to DST SED 2011-01 (i.e., upstream to downstream). TCE was the only other VOC detected in the surface water samples, and was limited to DST SED 2011-05 through DST SED 2011-07 at levels slightly higher than detection limits. No other VOCs were reported above detection limits in the surface water samples (see **Table 1 and Figure 4**).

Similar results are observed for the sediment samples. Cis-1,2-DCE was reported in all sediment samples except for DTS SED 2011-01, with concentrations generally decreasing from DST SED 2011-07 to DST SED 2011-01 (i.e., upstream to downstream). As in the surface water samples, TCE was also detected in four sediment samples (i.e., DST SED 2011-02, -04,-06, and -07), with a general decrease as the locations get closer to State Road. For the sediment samples two other VOCs (i.e., trnas-1,2-DCE and VC) were sporadically reported above detection limits. Trans-1,2-DCE was reported at DST SED 2011-06, and VC was reported at DST SED 2011-07 (see **Table 1 and Figure 5**).

Combining all of the detectable VOCs to generate a total VOC number provides some additional insight into the VOC distribution, as it is noted that the total VOC values decrease from the farthest upstream sampling point at DST SED 2011-07 to non-detect (ND) at DST SED 2011-01 (see **Table 1 and Figure 6**).

CONCLUSIONS

Based on the results of the DS Tributary (East) Investigation completed from September 13, 2011 at the Detrex Site, the following conclusions are presented.

- The field reconnaissance of the eastern portion of the DS Tributary did not reveal any remarkable features that would indicate an ongoing discharge of DNAPL to the DS Tributary from the Detrex Site.
- The results of the CCTV inspection indicated that the culvert is eroded along the bottom, but generally intact; and there were no indications of significant seepage of water into the

culvert from exposed joints. Further, no DNAPL was observed within the culvert and air monitoring results did not indicate the presence of any significant levels of VOCs.

- The CCTV inspection also identified a number of penetrations coming into the culvert from both the north and south.
    - The 15-in. drain line, previously noted by FBAG as a 14-in. drain line appears to extend approximately 36 ft. from the culvert in a southeast direction. However, at this point the line appears to be filled with sediment and only a trickle of water was observed from this line. Detrex plans on completely plugging this line in conjunction with upcoming activities in the western portion of the DS Tributary.
    - Another 15-in line coming into the culvert from the south was identified, but this line was found to be plugged approximately 4 ft. into the line and no water was observed discharging from this line.
    - Penetrations from the north side of the culvert were also observed, but these were not explored as they do not originate from the Detrex Site. Water was observed to be discharging from at least one of the identified north penetrations into the culvert.
- The results of the surface water and sediment sampling from the seven sampling location along the eastern portion of the DS Tributary reported low level impacts of a limited number of VOCs and no SVOCs were detected.
- The reported surface water results are not indicative of the presence of DNAPL based on accepted rules of thumb for dissolved phase constituents in contact with free product. Additionally, no sheens were observed during surface water sampling. In general the results agree with those previously reported by FBAG with the exception of FBAG sample 6-16-11-1 which reported 3,790 µg/L of total VOCs. Based on field observations of a stake at this location, this sample was obtained from the northern bank of the DS Tributary and not within the DS Tributary.
- The reported sediment sample results were all well below the established CRGs and the reported concentrations were not indicative of the presence of DNAPL. No sheens were observed during the sediment sampling.
- Overall, the reported surface water and sediment sample results detected were very low concentrations of VOCs and no SVOCs. Based on these results, as well as previously reported results, it does not appear that the eastern portion of the DS Tributary is an ongoing source of DNAPL to the downstream area. The data continues to support the historic nature of noted impacts in the downstream DS Tributary area and is not the result of ongoing releases from the Detrex Site.

CLOSING

Once USEPA has had an opportunity to review this letter report, Detrex would like to schedule a conference call to address any question or comments. Detrex plans to continue to implement the DS Tributary Excavation Work Plan which has already been approved by the USEPA. In addition to the excavation in the western portion of the DS Tributary (State Road Area), Detrex will also plug the 15-inch drain pipe identified on the south side of the culvert with concrete. The DS Tributary Excavation work is tentatively planned to begin on October 17, 2011, pending favorable weather conditions.

In the meantime, if you have any questions regarding this submittal, please do not hesitate to contact me at 216-622-2432 at your convenience.

Sincerely,

URS Corporation - Ohio

Martin L. Schmidt, Ph.D.
Vice President

Enclosures – Figures, Tables, and Attachments

cc: R. Currie – Detrex Corporation
T. Steib – Detrex Corporation
T. Doll - Detrex Corporation
D. Gray – URS Corporation
R. Williams – Ohio EPA
W. Earle – SulTRAC
File Copy

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Tables

Table 1

Detrex Site - Ashtabula, OH
DS Tributary (East of State Road)
Surface Water Samples - September 13, 2011

Sanple ID	Units	cis-1,2 DCE	trans-1,2 DCE	PCE	TCE	VC	Chloroform	Dibromochloromethane		Total VOCs
DST SED 2011-1	mg/L	<0.005 (ND)	<0.0100 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)		ND
DST SED 2011-2	mg/L	**0.0059**	<0.0100 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)		0.006
DST SED 2011-3	mg/L	**0.00786**	<0.0100 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)		0.008
DST SED 2011-4	mg/L	**0.0117**	<0.0100 (ND)	<0.005 (ND)	**0.00553**	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)		0.017
DST SED 2011-5	mg/L	**0.0183**	<0.0100 (ND)	<0.005 (ND)	**0.00513**	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)		0.023
DST SED 2011-6	mg/L	n/a	n/a	n/a	n/a	n/a	n/a	n/a		ND
DST SED 2011-7	mg/L	**0.0156**	<0.0100 (ND)	<0.005 (ND)	**0.0204**	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)		0.036
Trip Blank	mg/L	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	<0.005 (ND)	**0.00793**	<0.005 (ND)		0.008

Note:

1) All samples non-detect (ND) for semi-volatile organics (SVOCs)

2) All volatile organics (VOCs) other than noted above were non-detect (ND)

Detrex Site - Ashtabula, OH
DS Tributary (East of State Road)
Sediment Samples - September 13, 2011

Sanple ID	Units	cis-1,2 DCE [CRG = n/a]	trans-1,2 DCE [CRG = n/a]	PCE [CRG = 392 mg/kg]	TCE [CRG = 1854 mg/kg]	VC [CRG = n/a]	Chloroform [CRG = n/a]	Dibromochloromethane [CRG = n/a]		Total VOCs [CRG = n/a]
DST SED 2011-1	mg/kg	<0.0214 (ND)	<0.0214 (ND)	<0.0214 (ND)	<0.0214 (ND)	<0.0214 (ND)	<0.0214 (ND)	<0.0214 (ND)		ND
DST SED 2011-2	mg/kg	**0.0205**	<0.0104 (ND)	<0.0104 (ND)	**0.0164**	<0.0104 (ND)	<0.0104 (ND)	<0.0104 (ND)		0.037
DST SED 2011-3	mg/kg	**0.0146**	<0.00795 (ND)	<0.00795 (ND)	<0.00795 (ND)	<0.00795 (ND)	<0.00795 (ND)	<0.00795 (ND)		0.015
DST SED 2011-4	mg/kg	**0.0332**	<0.00810 (ND)	<0.00810 (ND)	**0.0356**	<0.00810 (ND)	<0.00810 (ND)	<0.00810 (ND)		0.069
DST SED 2011-5	mg/kg	**0.0263**	<0.0108 (ND)	<0.0108 (ND)	<0.0108 (ND)	<0.0108 (ND)	<0.0108 (ND)	<0.0108 (ND)		0.026
DST SED 2011-6	mg/kg	**0.0952**	**0.0135**	**0.0239**	**0.186**	<0.00895 (ND)	<0.00895 (ND)	**0.0331**		0.352
DST SED 2011-7	mg/kg	**0.419**	<0.00735 (ND)	<0.00735 (ND)	**0.00769**	**0.114**	<0.00735 (ND)	<0.00735 (ND)		0.541

Note:

1) All samples non-detect (ND) for semi-volatile organics (SVOCs)

2) All volatile organics (VOCs) other than noted above were non-detect (ND)

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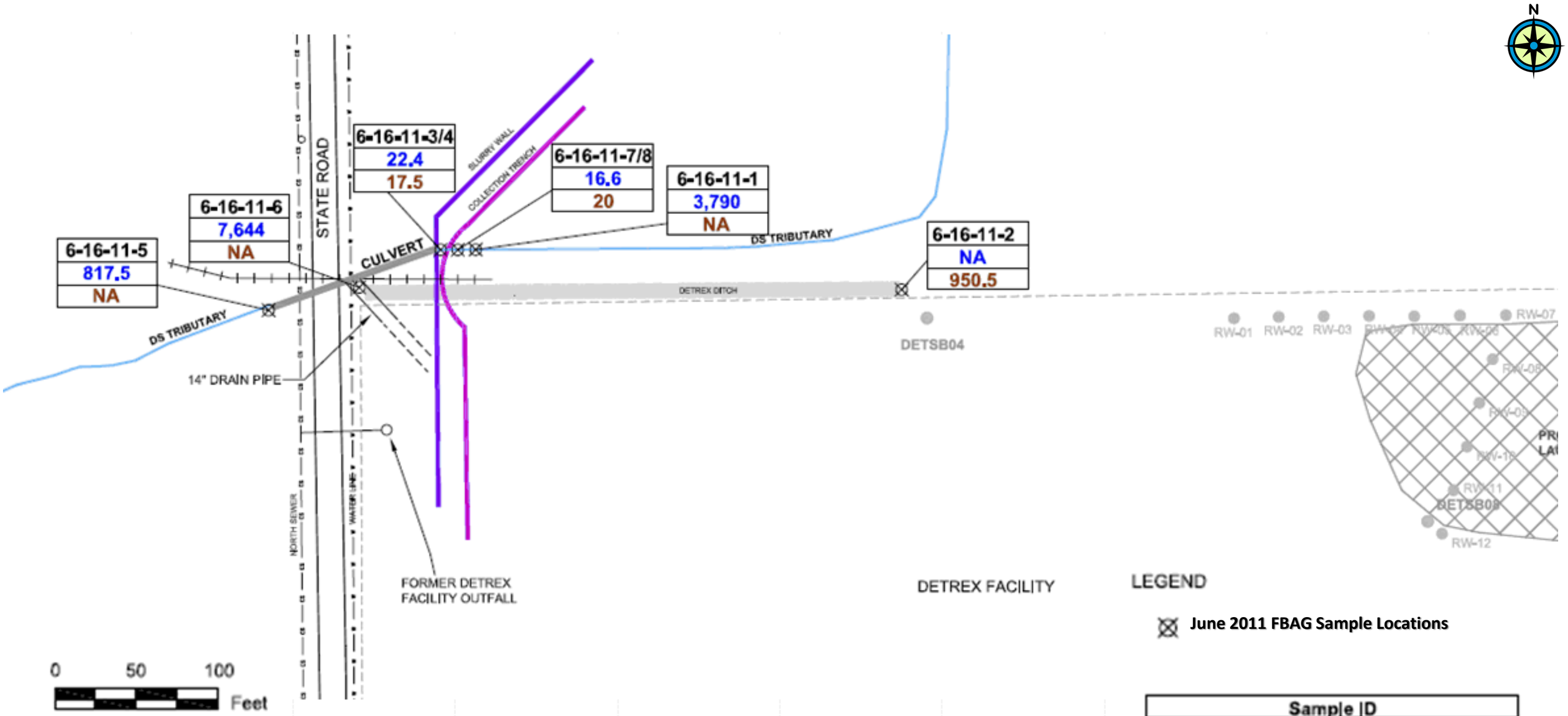
Figures

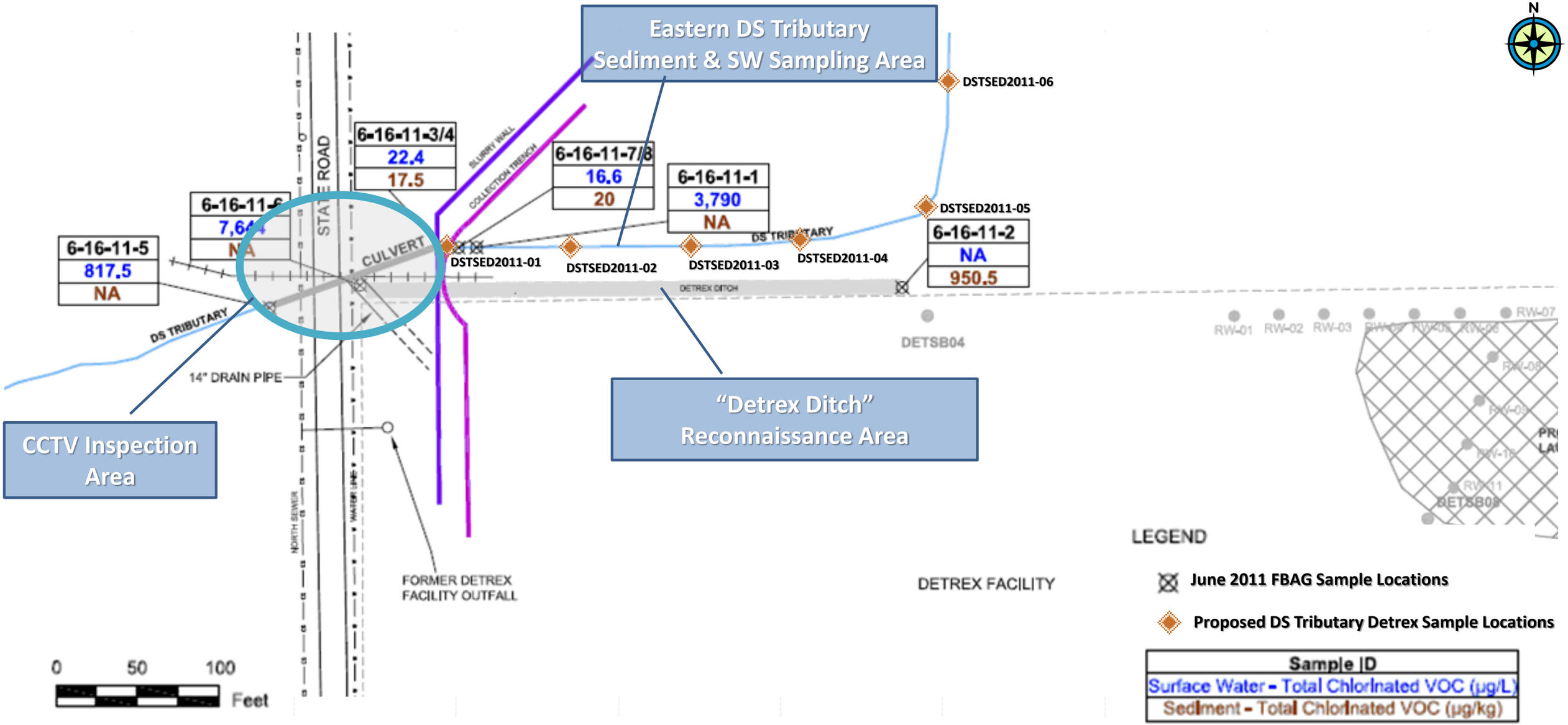
Detrex Site – FBAG June 2011 Sampling Results DS Tributary (East)



Note: Figure reproduced from FBAG Slide (July 2011 USEPA Meeting)

Figure 1

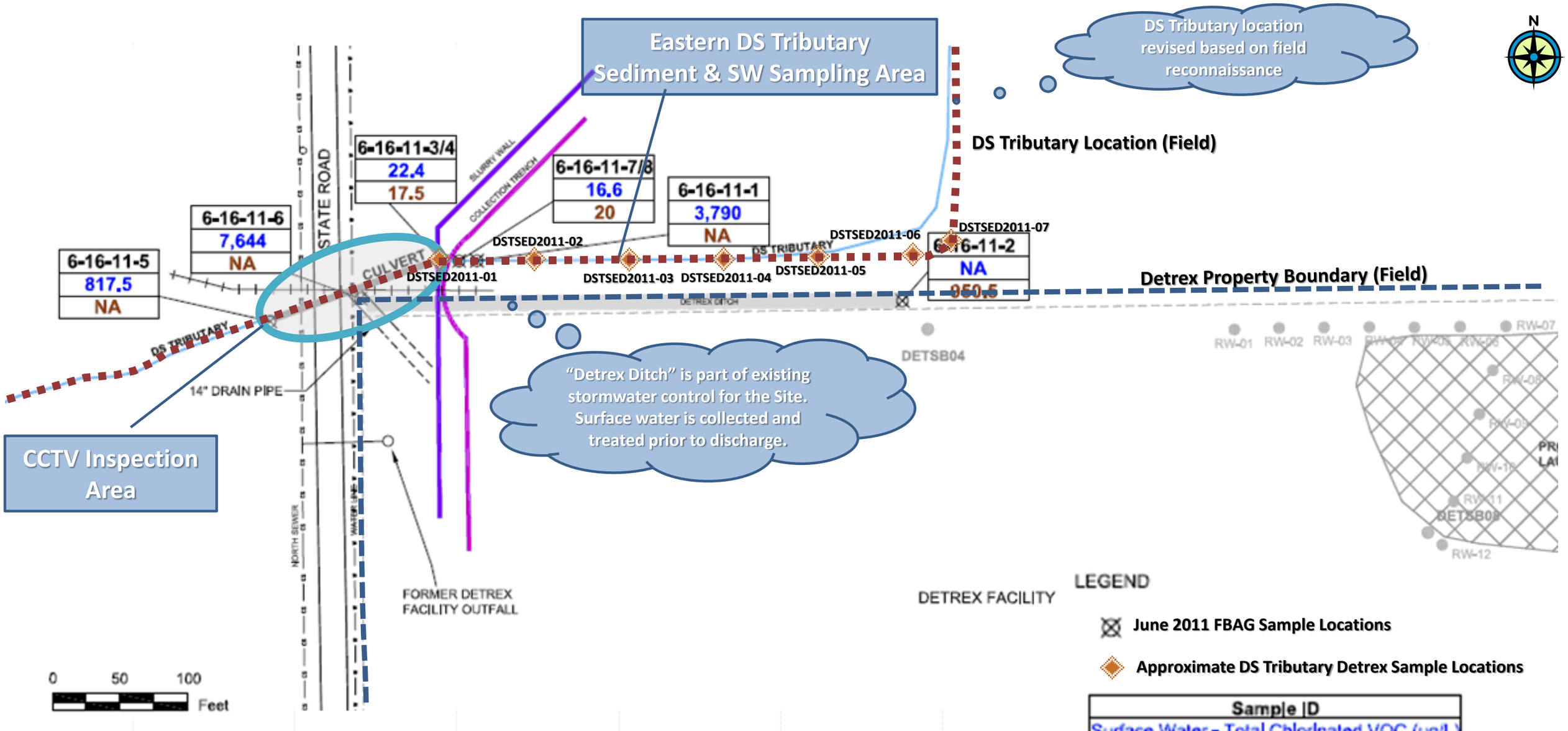
Detrex Site – Proposed DS Tributary (East) Investigation Locations



Note: Figure reproduced from FBAG Slide (July 2011 USEPA Meeting)

Figure 2

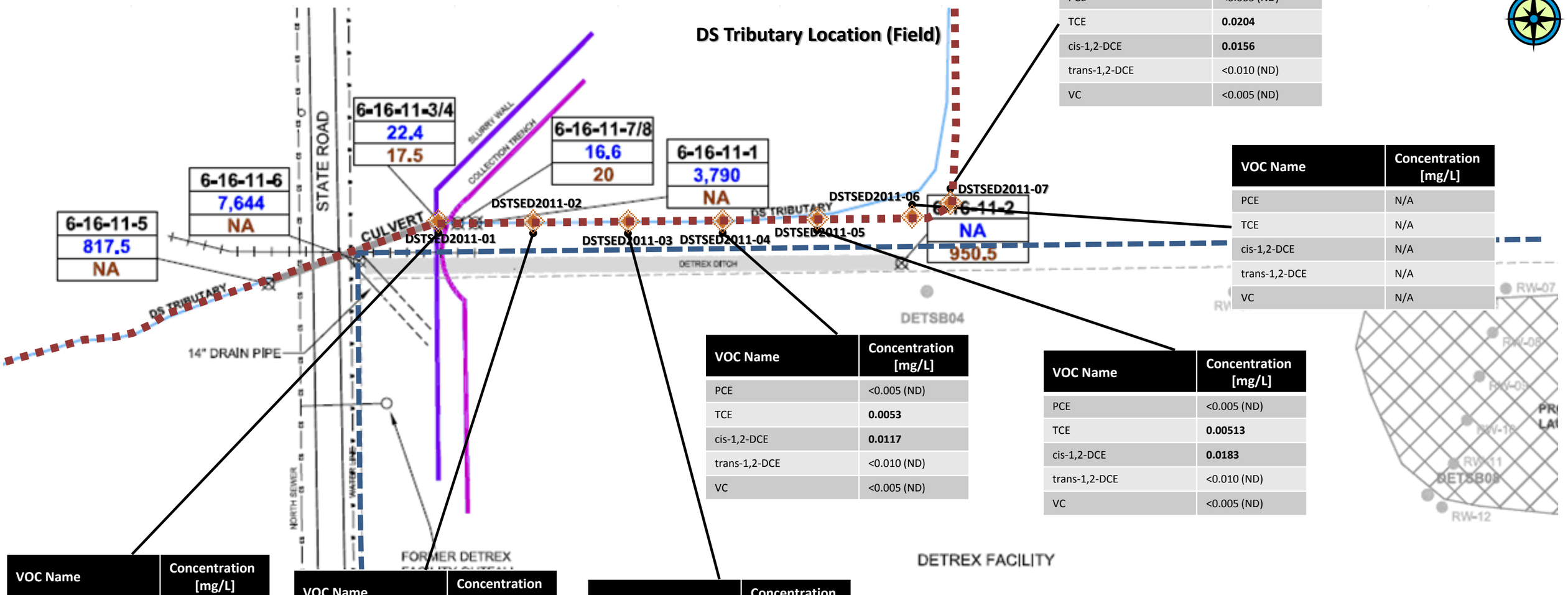
Detrex Site – Completed DS Tributary (East) Investigation Locations



Note: Original Figure reproduced from FBAG Slide (July 2011 USEPA Meeting)
URS Field Observed revisions noted on figure above

Figure 3

Detrex Site – DS Tributary (East) SW Sampling Results



VOC Name	Concentration [mg/L]
PCE	<0.005 (ND)
TCE	**0.0204**
cis-1,2-DCE	**0.0156**
trans-1,2-DCE	<0.010 (ND)
VC	<0.005 (ND)

VOC Name	Concentration [mg/L]
PCE	N/A
TCE	N/A
cis-1,2-DCE	N/A
trans-1,2-DCE	N/A
VC	N/A

VOC Name	Concentration [mg/L]
PCE	<0.005 (ND)
TCE	**0.0053**
cis-1,2-DCE	**0.0117**
trans-1,2-DCE	<0.010 (ND)
VC	<0.005 (ND)

VOC Name	Concentration [mg/L]
PCE	<0.005 (ND)
TCE	**0.00513**
cis-1,2-DCE	**0.0183**
trans-1,2-DCE	<0.010 (ND)
VC	<0.005 (ND)

VOC Name	Concentration [mg/L]
PCE	<0.005 (ND)
TCE	<0.005 (ND)
cis-1,2-DCE	<0.005 (ND)
trans-1,2-DCE	<0.010 (ND)
VC	<0.005 (ND)

VOC Name	Concentration [mg/L]
PCE	<0.005 (ND)
TCE	<0.005 (ND)
cis-1,2-DCE	**0.0059**
trans-1,2-DCE	<0.010 (ND)
VC	<0.005 (ND)

VOC Name	Concentration [mg/L]
PCE	<0.005 (ND)
TCE	<0.005 (ND)
cis-1,2-DCE	**0.00786**
trans-1,2-DCE	<0.010 (ND)
VC	<0.005 (ND)

DETREX FACILITY

LEGEND

June 2011 FBAG Sample Locations

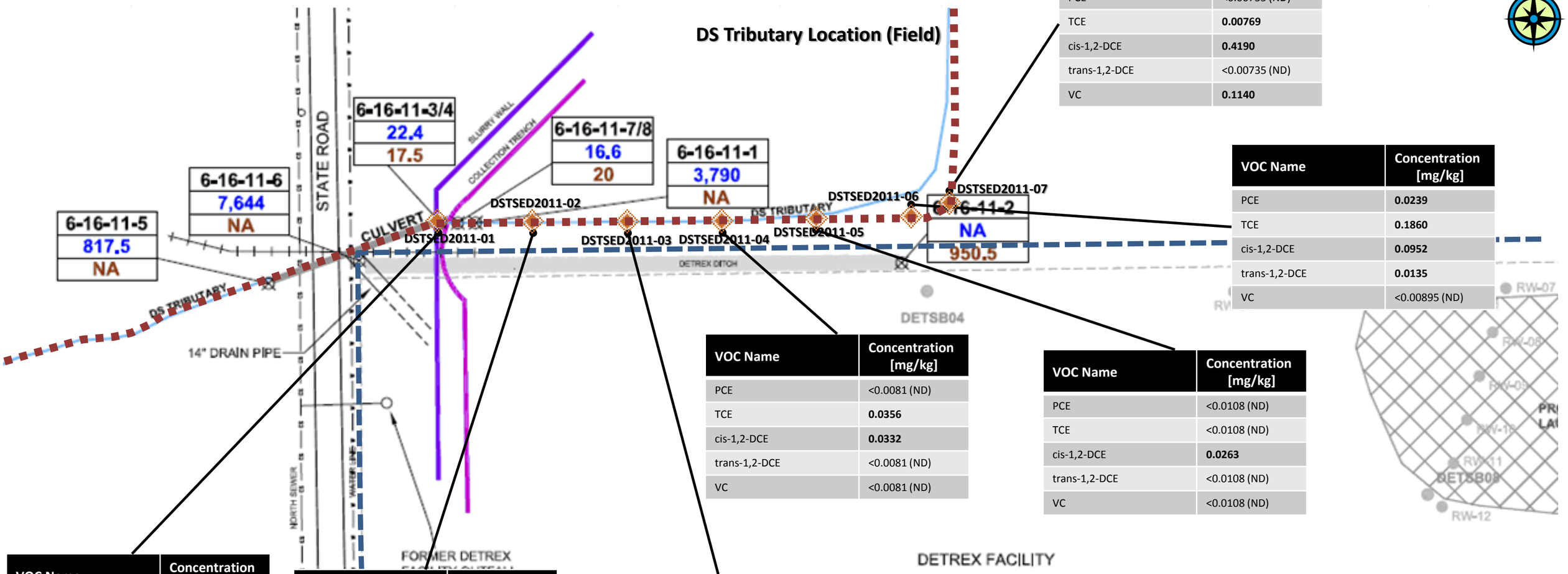
Approximate DS Tributary Detrex Sample Locations

Sample ID
Surface Water – Total Chlorinated VOC (µg/L)
Sediment – Total Chlorinated VOC (µg/kg)

Note: Original Figure reproduced from FBAG Slide (July 2011 USEPA Meeting)
URS Field Observed revisions noted on figure above

Figure 4

Detrex Site – DS Tributary (East) Sediment Sampling Results



VOC Name	Concentration [mg/kg]
PCE	<0.00735 (ND)
TCE	**0.00769**
cis-1,2-DCE	**0.4190**
trans-1,2-DCE	<0.00735 (ND)
VC	**0.1140**

VOC Name	Concentration [mg/kg]
PCE	**0.0239**
TCE	**0.1860**
cis-1,2-DCE	**0.0952**
trans-1,2-DCE	**0.0135**
VC	<0.00895 (ND)

VOC Name	Concentration [mg/kg]
PCE	<0.0081 (ND)
TCE	**0.0356**
cis-1,2-DCE	**0.0332**
trans-1,2-DCE	<0.0081 (ND)
VC	<0.0081 (ND)

VOC Name	Concentration [mg/kg]
PCE	<0.0108 (ND)
TCE	<0.0108 (ND)
cis-1,2-DCE	**0.0263**
trans-1,2-DCE	<0.0108 (ND)
VC	<0.0108 (ND)

VOC Name	Concentration [mg/kg]
PCE	<0.0214 (ND)
TCE	<0.0214 (ND)
cis-1,2-DCE	<0.0214 (ND)
trans-1,2-DCE	<0.0214 (ND)
VC	<0.0214 (ND)

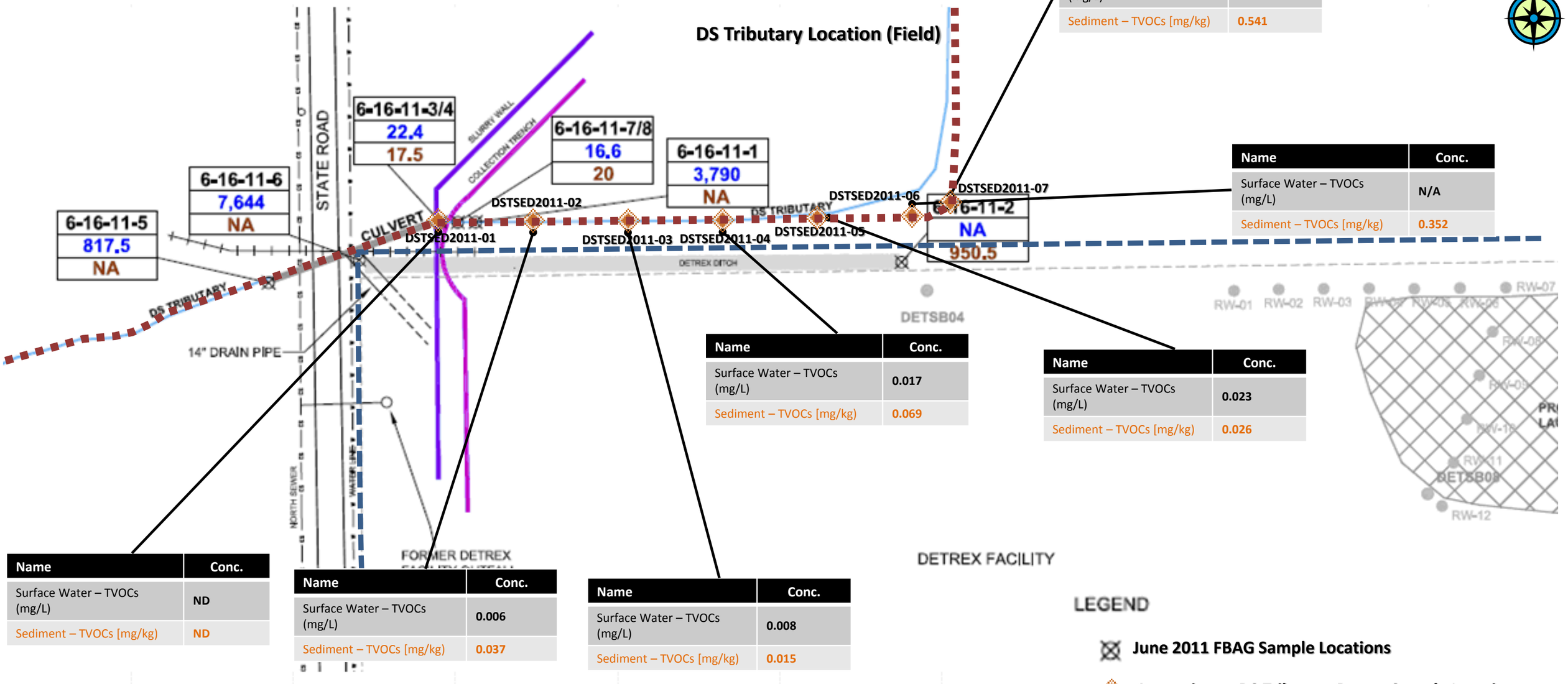
VOC Name	Concentration [mg/kg]
PCE	<0.0104 (ND)
TCE	**0.0164**
cis-1,2-DCE	**0.0205**
trans-1,2-DCE	<0.0104 (ND)
VC	<0.0104 (ND)

VOC Name	Concentration [mg/kg]
PCE	<0.00795 (ND)
TCE	<0.00795 (ND)
cis-1,2-DCE	**0.0146**
trans-1,2-DCE	<0.00795 (ND)
VC	<0.00795 (ND)

Note: Original Figure reproduced from FBAG Slide (July 2011 USEPA Meeting)
URS Field Observed revisions noted on figure above

Figure 5

Detrex Site – DS Tributary (East) Sediment/SW Sampling Results



Name	Conc.
Surface Water – TVOCs (mg/L)	0.036
Sediment – TVOCs [mg/kg]	0.541

Name	Conc.
Surface Water – TVOCs (mg/L)	N/A
Sediment – TVOCs [mg/kg]	0.352

Name	Conc.
Surface Water – TVOCs (mg/L)	0.017
Sediment – TVOCs [mg/kg]	0.069

Name	Conc.
Surface Water – TVOCs (mg/L)	0.023
Sediment – TVOCs [mg/kg]	0.026

Name	Conc.
Surface Water – TVOCs (mg/L)	ND
Sediment – TVOCs [mg/kg]	ND

Name	Conc.
Surface Water – TVOCs (mg/L)	0.006
Sediment – TVOCs [mg/kg]	0.037

Name	Conc.
Surface Water – TVOCs (mg/L)	0.008
Sediment – TVOCs [mg/kg]	0.015

LEGEND

- June 2011 FBAG Sample Locations
- Approximate DS Tributary Detrex Sample Locations

Sample ID (FBAG Data)
Surface Water - Total Chlorinated VOC (µg/L)
Sediment - Total Chlorinated VOC (µg/kg)

Note: Original Figure reproduced from FBAG Slide (July 2011 USEPA Meeting)
URS Field Observed revisions noted on figure above

Figure 6